

Review Comments
Source Control Measures Effectiveness Demonstration
City of Portland Outfalls Project
Portland, Oregon
Dated September 2015

Submitted December 2, 2015

Following are the United States Environmental Protection Agency's (EPA) comments on the September 2015 document entitled, Source Control Measures Effectiveness Demonstration, City of Portland Outfalls Project, prepared by the City of Portland Environmental Services. This report covers 39 city outfalls that are located in the Portland Harbor Study Area. An overview of the comments is provided in the Site Status Summary Table that follows the general comments.

EPA understands the objective of the assessment was to determine whether Portland Harbor Source Control Measures (PH-SCMs) were effective in each basin that PH-SCMs were implemented by the City of Portland (City) and to identify basins that warrant additional monitoring to demonstrate the effectiveness of PH-SCMs that were implemented. This evaluation was performed by the City at the request of the Oregon Department of Environmental Quality (DEQ) as a final step under the intergovernmental agreement (IGA) to provide evidence for a DEQ Source Control Decision.

General Comments

1. The only basin identified within the report for further SCM effectiveness monitoring was Basin 16. Based on the current information, EPA recommends that the Sampling and Analysis Plan for Basin 16 be amended to conform to JSCS guidelines and not focus on direct comparisons with data collected upstream in 2007. For completeness, EPA recommends sampling at Outfall 16 to include analysis of all analytes in Table A-1.
2. Until SCMs are fully implemented and demonstrated effective at upland sites, the City should consider long term stormwater monitoring of its Outfalls (over and beyond what is required for the MS-4 permit) until data indicates that discharges from City Outfalls have been adequately controlled. Throughout the report, the City presumes that once upland SCMs are implemented, "site SCM effectiveness demonstration is/will be sufficient." This statement is not supported with current City Outfall data.
3. Additional City SCMs (i.e., storm drain solids removal, street sweeping) may be needed before and after upland SCMs are implemented. It may be several years before upland SCMs are implemented and demonstrated effective. During this time, contaminated solids may be depositing in City storm drain lines and streets. Removal of these solids before and after site SCMs are complete will further reduce risk of Willamette River recontamination. The City should consider long-term implementation of SCMs (i.e., storm drain solids removal, street sweeping).
4. Based on the limited data for post-SCM measurements at City Basins 43 and 44, additional stormwater monitoring may be warranted (see specific comments below).

5. The City should remove any statements that NPDES 1200-Z stormwater benchmark monitoring concentrations are authorized discharge limits (see Specific Comment 3b, 9b Appendix B Basin Evaluation summaries, and elsewhere). Benchmark monitoring concentrations are used to determine the overall effectiveness of control measures and to assist in determining when additional corrective actions may be necessary to comply with effluent limitations. Benchmark monitoring concentrations are not limits.
6. The City uses different comparative values (e.g., DEQ background, Current NPDES Benchmark, Former NPDES Benchmark, Approximate Knee of DEQ Curve) in developing the Weight of Evidence. While these are useful, Portland Harbor Preliminary Remediation Goals (PRGs) (see July 2015 Portland Harbor Draft Final Feasibility Study) (or previously, JSCS SLVs) should be used as the primary reference value. In other words, PRGs are the overall long term goal post for source control work once they are adopted by the Record of Decision as Remedial Goals. Thus, while data may support that contaminant discharge concentrations have significantly decreased and may now be below the approximate knee of the DEQ curve, the DEQ curve should be used only as a tool to evaluate storm water and prioritize site cleanup.

EPA Site Status Summary – City of Portland Outfalls Effectiveness

Question	Answer	Description
Are source control measures being implemented?	Yes	<p>OF-43: The City cleaned portions of the system in 2012.</p> <p>OF-18: The City cleaned portions of system in 2001, 2004, and 2010</p> <p>OF-22B: The City cleaned portions of the system in 2004 and abandoned one historical connection.</p> <p>OF-22C: The City cleaned portions of the system in 2004.</p> <p>OF-44: The City cleaned portions of the system in 2009.</p> <p>OF-45: The City cleaned the system in 2008.</p> <p>OF-52: The City cleaned portions of the system in 2010.</p> <p>OF-16: The City cleaned out 8-inch front Ave storm line in 2006 to remove legacy contamination.</p>
Are there JSCS SLV exceedances?	Yes	The following basins contained one or more SLV exceedances: 11, 19A, 22D, 44A, 47, 48, 49, 50, 52A, M-2, M-3, S-2, S-5, 15, 16, 17, 18, 19, 22, 22B, 22C, 43, 44, 45, 52, 52C, 52D, 53, 53A, M-1, S-1, and S-6
Are there stormwater PRG exceedances?	NA	No comparison to stormwater PRGs presented
Are pollutant concentrations typical of Portland Harbor industrial sites (e.g. below the knee of the curve)?	Yes	<p>DEQ Guidance Curves are presented for 12 analytes. The basins with concentrations above the approximate knee of the curve for each analyte are as follows:</p> <p>Arsenic: 22, 22B, 53A</p> <p>BEHP: 18, 52D, 53, 19</p> <p>Cadmium: None (post-SCM)</p> <p>Chromium: 19A, 53A, 45, 52D</p> <p>Copper: 16</p> <p>Lead: None (post-SCM)</p> <p>Mercury: None</p> <p>Nickel: 45</p> <p>Silver: 52D</p> <p>Total PAHs: 22B, S-1</p> <p>Total PCBs: 16, 22, 44</p> <p>Zinc: None</p>
Are stormwater COCs from this site the same as those defined for the associated SMA?	No	The analytes presented in this document do not cover all COCs for the associated SMAs. A more complete analysis should present results including dioxins/furans, VOCs, phthalates, and chlorinated pesticides.
Do sampled stormwater events meet JSCS criteria?	No	<p>For OF-16, post-SCM monitoring has not occurred, but proposed monitoring does not meet all criteria. Refer to Specific Comment 10.</p> <p>For other outfalls, specific stormwater event sampling methods not presented.</p>
Is further stormwater data collection recommended?	Yes	Refer to specific comments 4a, 9e, and 9f, and general comments 2 and 4.
Are additional source control measures recommended?	Yes	Refer to general comment 3 and specific comment 9a.

Specific Comments

1. Section 2.1 Outfalls Project Overview: A map and table summarizing the locations of the 39 City outfalls within the Portland Harbor Study Area and associated drainage areas should be provided. This information was included in the City of Portland Municipal Stormwater Source Control Report for Portland Harbor, but should also be provided here for completeness and easy reference.
2. Section 3.2 Decision Framework: This section should clearly describe the relationships presented in Figure 1 and which designated “Outcomes” required the supporting Weight-of-Evidence (WOE) analyses presented in Section 3.3.
3. Section 3.3.2 Quantitative Lines of Evidence:
 - a. The City should explain how the analytes used in the quantitative lines of evidence evaluation (i.e., metals, BEHP, Total PAHs, and Total PCBs) were chosen. Other chemicals of interest (COIs) exist within City basins, and the effectiveness of SCMs in removing these COIs is unknown based on information presented. The City uses different comparative values in developing the Weight of Evidence. Preliminary Remediation Goals (PRGs) as described in the July 2015 Portland Harbor Draft Final Feasibility Study (or previously, JSCS SLVs) should be used as the primary reference value.
 - b. Metals subparagraph: The paragraph that states, “These [NPDES 1200Z stormwater] permits allow for copper, lead, and zinc concentrations in industrial stormwater discharges up to established benchmark concentrations” is incorrect. The 1200Z permit states at Schedule A.4.a, “The permit registrant must not cause or contribute to a violation of instream water quality standards as established in OAR 340-041.” Further, Schedule A.9 clarifies that “Benchmarks and reference concentrations for impairment pollutants are guideline concentrations, not limitations.”
4. Section 4.1 Monitoring Objectives:
 - a. Until SCMs are fully implemented and demonstrated effective at upland sites, the City should consider long-term stormwater monitoring of its Outfalls (over and beyond what is required for the MS-4 permit) until data indicates that discharges from City Outfalls have been adequately controlled. For example, Outfalls 22 and 43 showed increases in PCB concentrations even after SCMs were implemented, which may have resulted from several scenarios, including but not limited to: the SCM released more contaminants, or the source has not been controlled.
 - b. A more explicit description of the proposed monitoring location and the 2007 monitoring location including the fractions of Basin 16 represented by each location should be provided.
 - c. Implementation of SCMs within Basin 16 other than those implemented by the City should be described in this section. The potential impact of these SCMs on the City’s effectiveness evaluation should be identified.
 - d. Based on Figure C-1, the effectiveness of the City SCM in Basin 16 (8” storm drain cleaning) cannot be determined using data from the 2007 sampling location. The 2007 sampling location is well upstream of the proposed sampling location making direct comparison of results inappropriate. The

effectiveness of the SCM should be evaluated using a weight-of-evidence approach as described in the Portland Harbor Joint Source Control Strategy (JSCS).

5. Section 4.2 Data Collection Scope and Use:

- a. Section 4.1 states that the primary monitoring objective is to collect data that will facilitate comparison to the stormwater data set collected in 2007; however, this approach may not be appropriate as stated in Specific Comment 4d above. Instead, the City should analyze stormwater samples for all constituents included in Table A-1.
- b. PAHs are listed as proposed analytes in this section, but are not included in the DQOs in Appendix C. PAHs should be included in the list of analytes along with the remaining metals in Table A-1.

6. Table 1 Source Control Measure (SCM) Effectiveness Monitoring Needs:

- a. For Outfall Basin 48, under “Basin-specific Measures by Other City Programs,” a note should be added that a treatment pond and swale were constructed in 1995.
- b. For Outfall Basin 44A, a note should be added to detail the outfall abandonment plan (i.e., documentation of the plans and the specific date the outfall is to be abandoned).
- c. For Outfall Basin 43, a source should be provided for the “Post-Cleaning stormwater data in 2012.”

7. Table 2 Existing Weight-of-Evidence (WOE) for Low Recontamination Potential from City Outfalls: For Outcome 4 (OF Basin 43) states, SW data were collected before and after PH-SCM implemented in the basin. However, in Table A-1, there is only one analyte listed for OF 43 Post-SCM (Total PCBs), and the concentration of this analyte was higher for Post-SCM monitoring. The analytical results do not demonstrate effectiveness of PH-SCMs in Basin 43, and additional SCM effectiveness evaluations may be needed to support designation as Outcome 4.

8. Figures A-1 through A-12: The red arrows should be defined in the legend. It is apparent from examination of the figure that the arrows are highlighting the change associated with SCM implementation, but this should be indicated in the legend.

9. Appendix B:

- a. Additional SCMs (i.e. storm drain cleaning) may be required in the Appendix B basins (16, 18, 22B, 22C, 43, 44, 45, and 52) after upland site SCMs have been implemented and determined to be effective. Contaminated solids may currently be depositing in City storm drain lines, and removal of these solids after source control is complete will further reduce risk of Willamette River recontamination.
- b. The City should remove any statements that NPDES General Industrial 1200-Z storm water benchmark monitoring concentrations are authorized discharge limits. Benchmark monitoring concentrations are used to determine the overall effectiveness of control measures and to assist in determining when additional corrective actions may be necessary to comply with effluent limitations. Benchmark monitoring concentrations are not limits.

- c. In each of the summaries, the City makes statements (or something similar) that “DEQ issued a revised permit limit that lowered the zinc benchmark from 600 ug/L to 120 ug/L, likely resulting in further reductions in zinc (and other metals) concentrations in basin stormwater.” The City should provide data to support this assertion and other similar statements or remove the statement(s).
- d. Outfall Basin 16: The overview section states that OF-16 discharges to an AOPC, which has “elevated concentrations of polychlorinated biphenyls (PCBs), metals, and other contaminants in river sediment.” Basin 16 discharges to AOPC 20 of which COIs include cadmium, copper, lead, mercury, zinc, PAHs, PCBs, dioxins/furans, and DDx. Adding these contaminants to effectiveness monitoring may be warranted.
- e. Outfall Basin 43: The overview section states that OF-43 discharges to an AOPC, which has elevated concentrations of PCBs, metals, and pesticides. However, as mentioned in Specific Comment 7, the only analyte tested in the effectiveness monitoring was Total PCB, which increased after City PH-SCMs were implemented. Additional stormwater sampling that includes testing of all COCs may be required.
- f. Outfall Basin 44: The overview section states that OF-44 discharges to an AOPC, which has elevated concentrations of PCBs, metals, and pesticides. However, the only analyte tested in effectiveness monitoring was Total PCB. Additional stormwater sampling that includes testing of all COCs may be required to confirm upstream SCMs are effectively reducing pollutant concentrations in stormwater discharged to the Willamette River.

10. Appendix C:

- a. The JSCS guidance (Section D.5.2) states that two of the four stormwater sampling events should be representative of “first flush” conditions (i.e., within the first 30 minutes of stormwater discharge) and the other two events should be collected within the first three hours of stormwater discharge. The stormwater sampling and analysis plan should be amended to conform to JSCS guidelines.
- b. Refer to Specific Comments 4 and 5 above.